

ALTERNATIVE EVALUATION PROCESS

INTRODUCTION

Reducing the alternatives to a reasonable range and selecting the preferred programmatic alternative will be difficult due to the enormous amount of information that must be considered. This paper explains the process to be used to narrow the alternatives to a reasonable range and the use of a series of matrices to summarize the most important information needed to select the preferred alternative.

NARROWING THE RANGE OF ALTERNATIVES

The first step in narrowing the current 16 variations of alternatives 1, 2, and 3 to a reasonable range, is to compare each of the alternative variations against the Solution Principles. The Solution Principles will be applied using current information from ongoing activities shown in Figure 1. For example prefeasibility studies may show that one of the variations is cost prohibitive or the environmental impacts would increase conflicts between resource areas. The non-compliance of the alternative variation to Solution Principles would be documented and the variation eliminated from the alternative mix.

In the next step, using current information from ongoing activities, we will determine how well alternative variations meet objectives and identify potential environmental impacts. Then the alternative variations will be refined or combined to improve the benefits and/or minimize the impact.

THE DECISION MATRIX

Decision-makers will be provided with a matrix (decision matrix) similar to Figure 2 containing information on how alternatives perform on key issues of interest. The decision matrix will be developed using several supporting matrices containing more detailed information. These supporting matrices will provide a well documented "paper trail" which explain how results were derived.

The decision matrix would contain a summary of the most important information needed for selection of a preferred programmatic alternative. The matrix would be used to compare alternatives in one easily understood display. For each alternative (row), the decision matrix would indicate how it is judged to perform with respect to the most important information (column). The more completely filled circles would show where an alternative is expected to perform more favorably with respect to a column heading.

These comparisons would allow decision makers to:

1. Eliminate alternatives that perform relatively poorly;

2. Emphasize alternatives that perform relatively well; and
3. Focus their selection on a common set of issues and comparisons.

For the example shown in Figure 2, the most important information is presented in three groups of columns. The first group of columns, titled "Ability to Meet Program Objectives" would present information on the ability of the alternatives to achieve program goals and objectives.

The second group of columns refers to the consequences of implementing the alternative. More specifically, they would disclose the extent of impacts in each area depicted. To conform with the rating scheme, an alternative that has the least impact in a area is rated highest.

The third group labeled "Consistency with Solution Principles," compares each alternative's ability to meet the Solution Principles.

SUPPORTING MATRICES

Before the decision matrix can be developed, several supporting matrices containing more detailed information will need to be created (Figure 3). The lowest level supporting matrix contains basic information about the variables to be used to analyze an alternative. For example, this matrix may contain information on the alternatives bromide levels at the export pumps (Figure 4). This information, along with other basic information, supports evaluations of the sub-objectives "Minimize cost of treating Delta water," "provide good water quality in Delta water exported for drinking water needs," and the most general objective of "Improve Water Quality." In general, results from a supporting matrix would be summarized. Summarized information from various supporting matrices would then be combined to form the matrix at the next higher level. This process would continue until the decision matrix is completed.

In addition, full documentation of an alternative's performance would be available in a database. This database may include technical and scientific data, meeting notes, modeling results, memos documenting rationale, etc.

EXAMPLE

For this example the information needed for water quality (program's objectives) is displayed in the decision matrix (Figure 2). Indicators of performance of each alternative appear in the columns below each objective. The first level supporting matrix for Water Quality is shown in Figure 3. The remaining levels of supporting matrixes are summarized in Figure 5. Five resource areas of water quality that need improvement are shown, for example "Drinking Water Quality." The supporting matrix for drinking water quality includes five levels of improvement. One of these is to "Minimize Cost of Treating Delta Water." The supporting matrix for this improvement could be divided into the geographical subareas "Bay Region", "Delta Region", "San Joaquin

River Region", "Sacramento River Region", and "SWP & CVP Service Areas Outside the Central Valley." For the later (export areas) the primary water quality parameters of concern at

the intakes could be bromide, total organic carbon, chlorides, salinity, pathogens and turbidity. At the lowest level the basic data for each alternative would be the concentrations of each of these parameters at the intakes.

INDICATORS OF PERFORMANCE - ABILITY TO ACHIEVE PROGRAM OBJECTIVES

Each column on the decision matrix (Figure 2) will include indicators of each alternative's ability to perform. These indicators will be summaries of other performance evaluations done to create the supporting matrices. These other performance evaluations will assess the ability of the alternatives to meet more specific subobjectives. Results from these more specific evaluations will be summarized using a three-step process including: 1) rating an alternative; 2) weighting the subobjectives; and 3) summarizing to the next level.

INDICATORS OF PERFORMANCE - ADVERSE IMPACTS

The indicators of performance for adverse impacts on the decision matrix (Figure 2) will come directly from the alternatives comparison in the programmatic EIR/EIS.

Similar to the ability to meet objectives, the basic data used for impact analysis is also located in the lowest level supporting data base. For the bromide example (Figure 4), the first step of impact analysis would include comparing how each alternative performs when compared to the Existing Conditions and the No-Action alternative.

INDICATORS OF PERFORMANCE - CONSISTENCY WITH SOLUTION PRINCIPLES

Information need for evaluation of alternatives for consistency with CALFED Solution Principles will be provided from the benefit and impact analysis as well as the other ongoing activities listed in the alternative evaluation process (Figure 1). The rating for each alternative will be assigned by a team of informed water resources interests (from the CALFED agencies and consultants) using their professional experience in judging the consistency of each alternative with the Solution Principles. As will all the ratings in the decision matrix, the evaluations will be extensively reviewed by the Program Team, resource technical teams, and stakeholders.

NEXT STEPS

Additional work is needed to refine the detailed framework of the decision and supporting matrices. CALFED staff and consultants will need to define the information needed, and its organization at the subobjective level(s) for each program element. CALFED staff also need to contribute to the development of the rating and weighting system so that each program element and its objectives can be evaluated consistently across all alternatives.